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(56) Documents Cited

GB 2358110 A	GB 2345822 A	GB 2332547 A
GB 2310302 A	EP 1001356 A1	WO 87/03116 A1
US 5245162 A	US 4654793 A	

(58) Field of Search

UK CL (Edition S) G4H HJ HNHE HTG , H4L LASS
Online: WPI, EPODOC, PAJ

(54) Abstract Title

Monitoring objects using remotely readable tags

(57) Monitoring one or more objects, especially people, within a zone, e.g. a building, convention centre, or shopping mall, by remotely reading data from tags carried by the objects, analysing the data and generating output information in response to specified data. A unique reference number (URN) on each tag is linked to data records of the corresponding object on a computer, which is linked to a central database. The tag could be read using a hand-held reader. A recognised URN causes the computer to initiate a variety of possible actions: on-screen or audible message (e.g. greeting for a conference attendee), alarm, specific message delivery elsewhere to another piece of equipment, person (e.g. security staff) or software application (e.g. for administrative purposes). Many possible applications are described. In a security system embodiment, two or more people (e.g. parent and child) each carrying a tag are prevented from passing through a security station unless in the presence of a designated complementary tag. The system could be used for locating e.g. a missing child within a monitored zone. The tags could be used to enable access to the person's medical history, stored in a central (e.g. hospital) database. The tags could be read/write (Fig. 2) as well as read-only (Fig. 1), e.g. in an exhibition, attendees could download information into their tag at "self-service" stations.

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995

GB 2 360 862 A

----- Periodic Data Exchange
 — Live Connection

Read Only Scenario

100

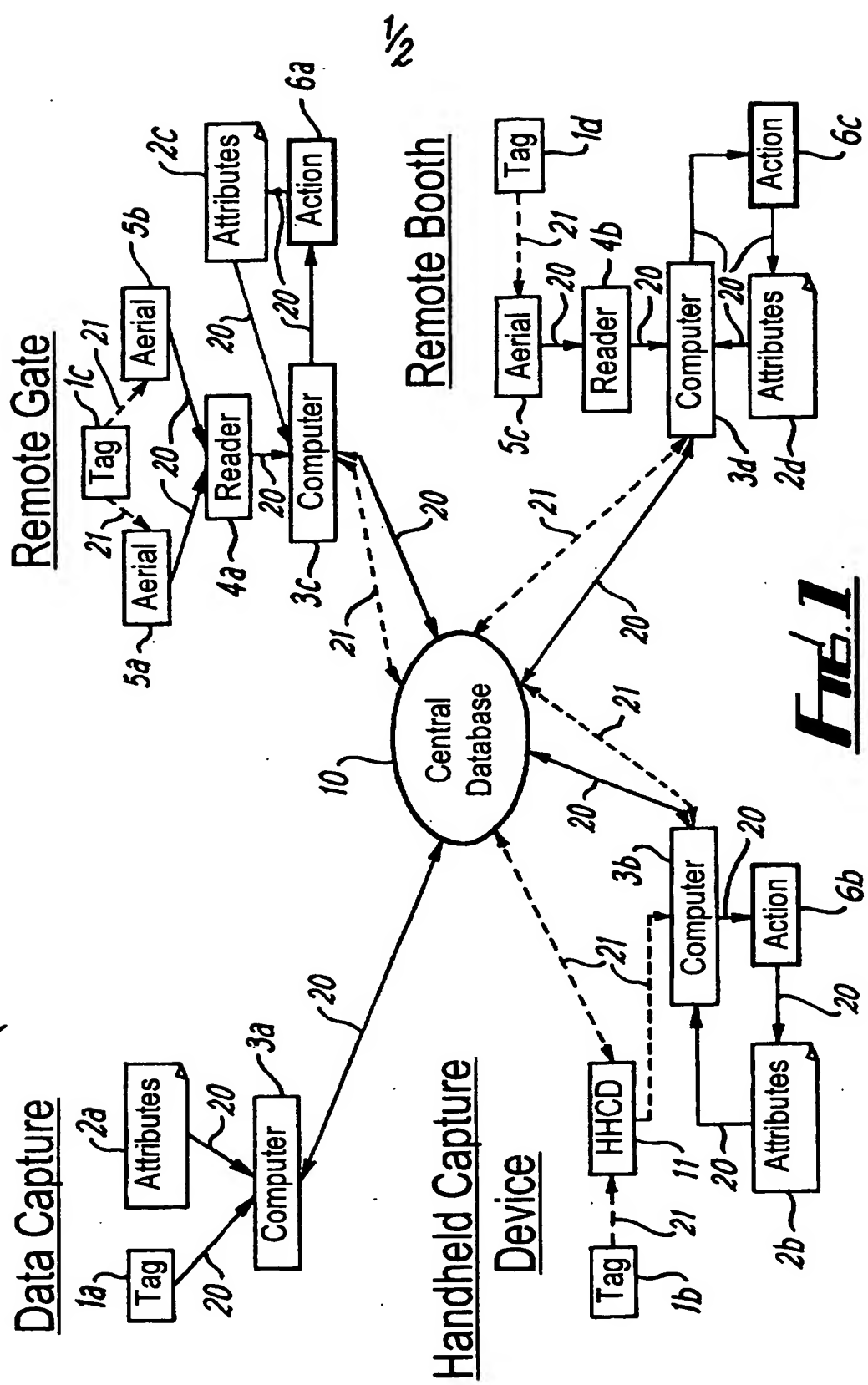


Fig. 1

Read Write Scenario

----- Periodic Data Exchange
 ----- Live Connection

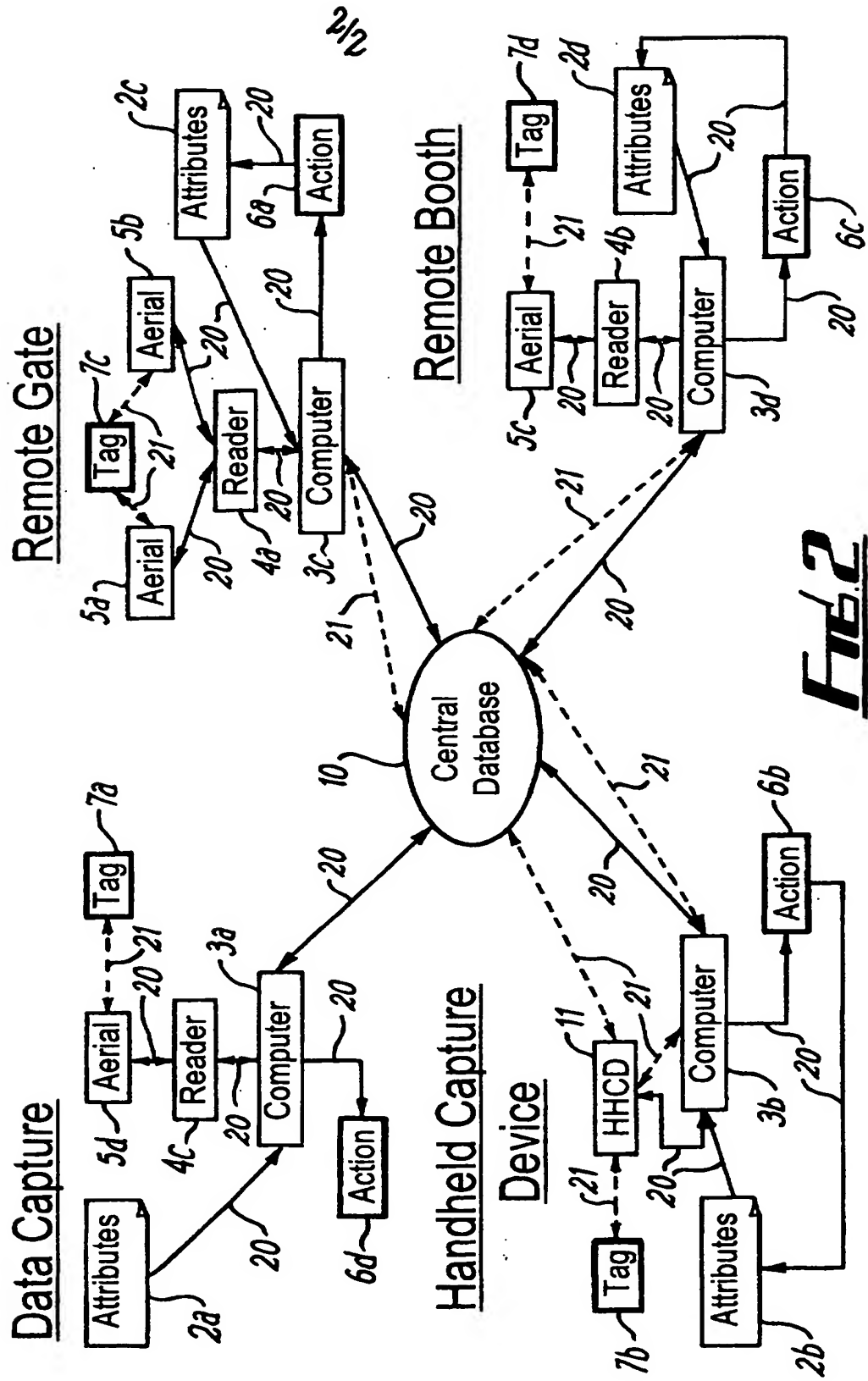


Fig. 2

Data Reader

5 The present invention relates to the remote transfer of information between one or more objects and an identification/communication system. In one embodiment, the invention is used by attendees, exhibitors and organisers at a conference.

10 It is normal practise for attendees and exhibitors at conferences (a term which in the present description encompasses exhibitions, trade shows, fairs, conventions or other visitor resources) to wear name badges which are fastened onto the wearer's clothing. The name badges serve as a means of identification for people communicating with each another, for example an attendee addressing an exhibitor. Attendees who are interested in a specific stand or exhibit seek to obtain further information from the exhibitor, often verbally or in the form of written literature. The literature may be located
15 at the stands, and the attendee, after a visiting a number of stands, may amass several pamphlets, books and/or samples. Additionally or alternatively, information can be forwarded to the attendee by mail, requiring the attendee to provide the exhibitor with contact details. Individuals may exchange business cards in order to provide their contact details.

20

Exhibitors and/or organisers of conferences often wish to keep a record of attendance details and the number and profile of attendees. For exhibitors, further communication with attendees who may be prospective customers is often desirable. Also, the exhibitors may wish to ascertain the popularity and success of their exhibit at
25 the end of a conference. In many cases, such information is gathered manually by exhibitors and/or conference organisers, or not at all.

Organisers typically are responsible for pre-conference printing of name badges and general information packages, and provide staff who hand out these badges and packages at the conference registration. Further staff who are able to help with information requests by attendees during the conference may also be required, while
5 marshals may be required to direct attendees to specified exhibits or rooms. It is further a responsibility of the conference organiser to ensure that only bona fide attendees have access to exhibit stands, and controlled access and security personnel may be required for this purpose.

10 Several systems for managing such visitor resources have been developed. US5936542 discloses a convention ID badge system in which a floppy disk or smart card serves both as an identification badge and means for exchange of electronic data between an exhibitor and an attendee. The system has two essential components: the attendee's floppy disk and an exhibitor station which can read/write data from/to the disk. In use,
15 the system requires physical contact between the reader and the badges worn or carried by the attendee.

Another system disclosed in US4806743 teaches that each attendee be issued with a badge containing an encoded number in the form of a bar code. The bar
20 code can be read when the attendee makes contact with a serving entity at which a bar code reader, for example a read pistol or pen, is installed. The bar code reader is connected to a memory unit which is able to record the details associated with the bar code, and the memory unit may be accessed by the exhibitor or conference organiser to undertake statistical analysis. In US4654793, a bar coded badge is employed similarly
25 to keep track of attendees at a conference. In a different field, bar codes have been used for determining the sequence of arrival of participants at the finish line of a race (see US5245162).

Readable electronically coded badges or cards are widely used for initiating and recording transactions. For example, credit and debit cards may be used by an individual to access an account so that an item can be purchased or funds delivered to a ATM. Access cards may be used to control access to and from a defined area (see, for
5 example, US5287269). In contrast to the above arrangements which require physical contact between the reader and badge in order to read the encoded data, systems which can read and write to remote tags on stationary or moving objects have been developed (see for example US5030807 and US5541583).

10 The present invention address problems associated with the transmission or exchange of information at events such as conferences. The invention provides an improved system for the remote transmission or exchange of information between an object, for instance an individual, and an identification/communication system, and also confers novel applications pertaining to access, security and information analysis. The
15 system is particularly useful for following unpredictable or pseudo-random paths of objects.

According to the present invention there is provided a system for monitoring objects within a zone comprising: remotely readable identification-data
20 storage means to be carried by objects within the zone; and interrogating means for remotely reading data stored by each such identification-data storage means.

The system may comprise remotely readable identification-data storage means associated with said one or more objects; interrogating means for remotely
25 reading data stored by each such identification-data storage means; processing means for analysing said data and capable of generating output information in response to specified data; and output means capable of effecting said output information.

The system may monitor objects interactively. Thus, for example, there may be feedback to an object via the output means when the object has been detected, the system further monitoring the behaviour of the object in response to the feedback. The output information effected by the output means may additionally or alternatively be
5 directed to an administrator or security personnel, who then may take appropriate action.

The processing means may be linked to a data acquisition means capable of storing read data, analysed data and output information. Alternatively or additionally, the interrogating means is linked to data acquisition means capable of storing read data.
10 Thus data collected from a number of objects (for example, individuals) may be relayed from the interrogating means to the data acquisition means to provide details of the objects which have been present in the zone being monitored. Data may be transferred from the interrogating means to the data acquisition means remotely, for example by a transmitter associated with the interrogating means and a receiver associated with the
15 data acquisition means. This may be the case for instance where interrogating means are located at a number of discreet locations within the zone being monitored and data is to be collected at a central data acquisition means remote from such locations.

Alternatively or additionally data may be transferred to the data acquisition
20 means by transporting the interrogating means to the location of the data acquisition means and physically linking the or each interrogating means to the data acquisition means to effect data transfer. For instance, the interrogating means may comprise one or more hand held units which may be docked with a docking station associated with the data acquisition means in order to effect data transfer.

25

In some instances, there may be two-way transfer of data between the data acquisition means and the interrogating means.

Output information generated in response to one identification-data storage means may be dependent upon the presence or absence of at least one other identification-data storage means. For example, the system may be set up such that an identification-data storage means disposed on an object is not permitted to leave a specified zone unless another identification storage means disposed on a different object is also present within range of the interrogating means.

The identification-data storage means may be a read-write tag capable of remotely recording information. The interrogating means may be capable of transmitting data to the identification-data storage means. The output means may be capable of transmitting data to the identification-data storage means.

The output means, following interrogation of a particular object's identification-data storage means, may feed back information to that object. The object may be a human. Thus, the output means may provide a human-discernible output dependent upon the data read by the or each interrogating means.

The read-write tag may comprise circuitry and transceiver components, the circuitry including an electronic chip (for example, a silicon chip) which decodes received signals into data, the data being stored in memory on the chip, and which transmits signals corresponding to data stored in memory.

The tag may comprise a silicon chip constituting or connected to a signal reception means to receive a signal which triggers reading of data on the chip, or writing in of data to the chip. The tag may be sensitive to radio frequency, the reception means comprise a loop aerial wound in a flat plane around the chip (see WO95/04981).

The interrogating means may be provided at a number of locations within the zone to monitor identification-data storage means associated with said one or more

objects within a minimum distance from the interrogating means. For example, entry of individuals into the zone and/or circulation of individuals within the zone can be monitored by interrogating their respective identification-data storage means as each individual passes such locations. The minimum distance may be less than 7 m, for example less than 5 m. Alternatively or additionally, the minimum distance may be less than 1.5 m, for example less than 70 cm.

The output information may be in the form of an audio or visual message. The message may be transmitted in electronic form.

10

The audio message may include any one of the group consisting of a greeting, request, instruction, warning and direction.

15

The visual message may be displayed on a display panel such as a television and/or computer monitor, telephone display and/or pager. The display panels may comprise any of the group consisting of cathode ray tubes, light emitting diode (LED) elements, liquid crystal display (LCD) elements, gas discharge display elements, analogue displays, plasma displays, and light emitting plastic (LEP) elements.

20

The human-discernible output may be in the form of a visually or audibly-produced greeting, request, direction etc. addressed to each object (for example, an individual) carrying the identification-data storage means. For example, the output may be produced on a monitor screen linked to the interrogating means and/or it may be supplied through an audio system.

25

The interrogating means, processing means and, optionally, output means, may be housed within a single unit. A central processing means may be in communication with the processing means of the single unit. There may be a remote

communication link between the central processing means and processing means of the single unit.

5 The single units may be designed to be hand held. The single units may transmit user-defined information to the identification-data storage means. The single unit user may manually select information to be transmitted to the identification-data storage means. Alternatively or additionally, the single unit may be programmable to transmit user-defined information to the identification-data storage means.

10 The interrogating means may be in the form of one or more hand held units issued to supervisory personnel within the zone. For instance, such personnel may, on encountering individuals within the zone, immediately ascertain their identity using the interrogating means thus enabling the supervisory personnel to address such individuals by name without having to ask for this information.

15

 Data stored in the identification-data storage means may include details related to an object, the details being any one of the group consisting of unique reference number (URN), title, name, postal address, e-mail address, telephone number, fax
20 number, occupation, employer, employment organisation, position within employment organisation, employment organisation field of activity, visitor classification code, personal interests, history of association with a company, age, medical history, medical condition and emergency contacts, supervisor details, parental details and guardian details.

25

 Data stored in the identification-data storage means may additionally include details in relation to the zone. Data stored in the identification-data storage means may additionally include information pertaining to accessions within subzones

associated with given interrogating means. An object's movements within a zone, for example at subzones defined by specific exhibitions stands, may be tracked.

5 The system may be utilised to control entry and/or exit of objects in a defined zone, and to provide directions and/or instructions to objects (for example, individuals) within the zone.

10 The zone may be any one of the group consisting of a building, convention centre, shopping mall, shop, play zone, recreation centre, public amusement centre, and temporary enclosure such as a marquee. Larger geographical areas, for example an urban area, may also define the zone.

15 The identification-data storage means may be delivered up by objects after a defined time period and data peculiar to each object may be examined.

 Data obtained by organisers and/or exhibitors may be utilised for market research purposes to analyse, for example, the number of visitors, visitor profiles, type of individuals frequenting specific stands and movement of individuals.

20 The invention will be further apparent from the following description with reference to the accompanying figures, which show, by way of example only, embodiments of the present invention.

25 Of the figures:

 Figure 1 is a flow chart diagram of a read only tag data storage and display system for conferences; and

Figure 2 is a flow chart diagram of a read/write data storage and display system for conferences.

A read only tag system 100 for data storage and display at conferences in depicted in Figure 1. The tag 1 is a read only device, available commercially from suppliers such as Texas A&M Instruments, USA. For registration purposes, the process of recording the details/attributes 2a of an attendee on a tag 1a is undertaken before the event and/or on-site. Pre-event registration details are provided to the organiser orally by telephone, or in written or electronic means via facsimile transmission, post, e-mail, web connection or disk. It is possible that on-site registration details are provided orally or in written format to a data capture clerk, or the delegate may prefer to enter a self registration booth where information is entered and captured electronically. In the latter scenario, registration is thus fully automated. In both cases, attributes 2a are recorded onto a computer.

A software program is used to link a unique reference number (URN) on the tag 1, the URN being allocated to each attendee and linked to the data records of that attendee on a computer 3 which is linked to a central database 10.

The tag 1 is optionally issued either before the event or on-site. The tag 1 may be combined with a conventional name badge. However, the tag 1 does not need to be visible, physically contacted or handled, to effect reading of the URN.

The tag reading process is discreet as is can be performed without knowledge of the bearer. Discreet tag reading will occur when the tag reader 4a,b is programmed to automatically read tags 1c,d within a minimum certain distance from the tag reader 4a,b. For example, the tag reader 4a,b may be able to read any tag 1c,d within a predetermined range, for example 2 m, from the reader 4a,b.

However, at specified reading stations, particularly where hand-held readers (or HHCD - a hand held capture device) 11 are used by exhibitors, the reading distance can be set to a fixed maximum threshold so that the tag reader 11 must be brought into close proximity, for example within 50 cm, to the tag 1b. In such cases, the attendee may
5 be aware that his tag 1b is being read, and his consent may be required for the tag reading to take place. (Tag readers 11 are commercially available from suppliers such as Philips.)

Once a tag 1 has been read, resulting actions 6 may be immediate and/or delayed. Recognition of the URN allows for pre-programmed actions 6 to be effected
10 instantaneously. For example, the tag wearer may be greeted and welcomed by an audio system, or channelled into a particular direction by a display system. The immediate action 6 would optionally include recording to memory the URN, time, date and location, so that this information, in combination with further data linked to that URN, can be accessed and analysed later.

15

Tag readers 4, 11 could be linked to a central database 10 to provide instant access read information on the central database 10 and also to store data and attributes 2 on the central database 10. Additionally or alternatively, tag readers 4, 11 could be linked to a remote copy on a computer 3 of the central database 10, so that the copy
20 database on the computer 3 can be accessed instantly. Connections between tag readers 4, 11 and other components of the system may be via live connections 20 or via periodic data exchange connections 21. The periodic connections 21 will, for example, result in a batch capture of URNs and linked information and attributes 2.

25

URN reading and capture is effected using an aerial 5, reader 4 and computer 3. The aerial 5 and reader 4 can be a combined piece of hardware, or all three elements can be present in a hand held capture device 11. The system allows for one computer 3 to be involved in analysing data captured through several aerial/reader (5/4) combinations. The aerial/reader (5/4) can be some distance from the computer 3, for

example from 1 to 100 m (cabling length may be as long as is suitable for a particular layout).

Data can be appended to a specific URN record using predetermined codes to represent conditions, attributes or actions. Software for the codes will be installed into the system, but the software could be modified by the system user in order to customise the system for different applications.

A recognised URN causes the computer 3 to initiate a variety of possible actions 6: on-screen or audible message, alarm, specific message delivery elsewhere to another piece of equipment, person or software application. Some actions 6 demand the attention of the user (a tag wearer and/or an exhibitor and/or an organiser).

In a read/write system 200 of the invented system (Figure 2), the tag 7 is read/write (such tags are similarly available commercially from suppliers such as Texas A & M Instruments). Within the exhibition environment, registration process will be as described for the read-only tag system 100 (Figure 1, *supra*). However, it is possible for data and attributes 2 to be read from and written to the individual tags 7a. Therefore, data and attributes 2 that in the read-only tag system would be held in the central database 10 can now be carried by the wearer of tag 7. Optionally, data transferred to the tag 7 could be duplicated and held in a central memory 10 in the read/write system 200.

Exhibitors would be able to install "self-service" stations at remote booths where attendees would manually operate a selection device (for example, a push-button or touch-button on a computer terminal) so that information would be downloaded onto their tags 7. The self-service station, once activated by the selection device, would remotely read and write data to the attendee's tag 7. The attendee would have an electronic record of information requested, which information could be downloaded at

the end of the exhibition, and furthermore, the exhibitor would keep a record of the information requested by an attendee.

A further embodiment of the present invention concerns a security system
5 which insures that two or more people each carrying a programmable tag are prevented from passing through a security station unless in the presence of designated complementary tag or tags. In one example of the system, a child and parent /guardian when entering a visitor display centre or theme park will each be issued with a data storage tag which is fitted onto them, say around each of their wrists in a similar way to
10 a hospital bracelet. These bracelets do not detach themselves easily, yet are not uncomfortable to wear. When leaving the enclosure, or passing within selected subzones of the enclosure, the system is programmed such that one tag cannot pass through a defined control barrier unless a reader located at the barrier detects simultaneously the appropriate complementary information from both tags, either simultaneously or within
15 a defined time interval. Alternatively or additionally, the control barrier when detecting a tag signal without the required complementary tag signal could trigger a visual and/or audio message and/or alarm. Users of the system, both security staff and the tag wearers, would receive feedback information from the system to alert them of the situation. Thus the system would ensure not only that a parent left the enclosure with their child, but also
20 that the child, for example, could not leave the enclosure with another person who was not authorised to do so. The system would thereby help to combat child (or adult) abduction. Similarly, the system could be used to "link together" a person and an object such as an asset, for example his/her case, or even to "link" two objects to each other.

25 The system could be used to the control the access or movement of a person in a defined zone subject to that person carrying more than one "correct" information-data storage means. For example, the person may be required to not only have on his person a personal identity label but also a specific item of clothing (for example a safety

hat) to which an information-data storage means is attached. Thus the person and another object are “linked” together by the system.

Additionally, security personnel will be able to monitor the movement of the wearers of the tags remotely if tag readers are installed at various locations around the enclosure. Preferably, the tag readers would remotely connect to a central control unit where incoming data is analysed, and the map position of each tag could be displayed. If people wearing complementary tags become separated within the enclosure, security staff will at request of one of the parties be able to remotely map the position of the tag attached to the other party. Furthermore, security personnel issued with hand-held readers would be able to read tags within the enclosure, so that for example, the identity and parent of a lost child could be established and the latter located so that the two are re-united.

Security or administrative personnel will in another embodiment be able to monitor a specific object (for example, a parcel) within a zone, and be able to link information on the object a person carrying the object.

In another embodiment, a parent/guardian and child (or any other designated people) would register themselves at a registration desk when entering a shop, visitor attraction or other enclosure. Here, the tag would be programmed with information pertaining to the child and their parent/guardian, and the tag would be fitted to the child. If within the shop, visitor attraction or enclosure the child become separated from their parent/guardian, security staff would be able to handle the situation in two possible ways: (i) staff with hand-held readers would be able to remotely read the tag fitted to the child, and have information regarding the child displayed on the reader. The child could then be reassured, by name, that they are safe and that they will soon be reunited with their parent/guardian. The parent would be notified by and audio or visual message that their child had been found, and that the child can be collected from a certain

place; and/or (ii) with tag readers located at discreet positions with the shop, visitor attraction or enclosure, the position of the child wearing a tag could be monitored remotely at a central processing station. If a guardian/parent loses contact with the child, security staff could be alerted, the position of the child located by the central processing station, and the parent notified of the exact location of their child.

In another embodiment of the present invention, a data storage tag would be issued to customers of a business organisation, for example a car sales dealer. The tag may be in the form of a business card that the customer is issued with and carries in his/her wallet or purse. When the customer enters the business premises, tag readers located at the entrance would be able to read information about the customer, and a message could be displayed or broadcast to the customer - for example a personalised welcome, and/or directions to an appropriate desk. A message could simultaneously be sent to staff within the business, so that they could ascertain which customer has entered the premises, and discover his history of association, for example number and type of previous purchases, with the business. If appropriate, a message could be relayed to staff within the organisation so that they would be alerted to take specific actions, for example to meet with the customer.

In a further embodiment of the present invention, people would be issued with data storage tags which would allow access to medical history and condition. The advantage of such a system is that a large amount of data on an individual stored in a central database (or a portable copy thereof) could be accessed remotely by tag readers. The tag, attached to or carried on the person, could be read by medical staff, for example in emergency situations where the person is unable to communicate with the staff. The medical staff would gain immediate access to information such as medical allergies, disease conditions such as diabetes, etc. and be able to administer appropriate treatment.

In a general hospital situation, patients are often issued with identification labels which are attached to their wrists. With the present invention, replacement of the label with a data storage tag would allow medical staff to remotely read information concerning a patient. A tag reader used by nurses, for example, could provide
5 instructions from the doctor to the nurses to issue specific medicaments. Furthermore, a record could be kept of administration of drugs and other treatment by writing data to the data storage tag. A central database containing information of all the patients and their treatments would significantly improve the efficiency and reliability of record keeping within the hospital. The system could be programmed to improve security within
10 the hospital, for example by allowing access to certain areas only to authorised staff wearing tags, and/or by preventing patients with tags from leaving specified areas. The latter security option requires reading stations and action effectors (for example barriers or doors) to be located at specific areas within the hospital, the reading stations connected to the central database or a copy thereof.

15

The embodiments described above demonstrate the interactive nature of the present invention. In each embodiment, data carried by the individuals is read remotely, ie. without physical contact, and this information can be used to generate feedback information for that individual or for system administrators (both comprising the system
20 users). The feedback information may be instantaneous, for example a visual or audio message to elicit a reaction from the users. Alternatively or additionally, feedback information may be stored and relayed to the users later.

CLAIMS

1. A system for interactively monitoring one or more objects within a zone comprising: remotely readable identification-data storage means associated with said one
5 or more objects; interrogating means for remotely reading data stored by each such identification-data storage means; processing means for analysing said data and capable of generating output information in response to specified data; and output means capable of effecting said output information.
- 10 2. The system according to claim 1, wherein the processing means is linked to a data acquisition means capable of storing read data, analysed data and output information.
3. The system according to either one of claim 1 or claim 2, wherein the
15 interrogating means is linked to data acquisition means capable of storing read data.
4. The system according to either one of the previous claims, wherein output information generated in response to one identification-data storage means is dependent upon the presence or absence of at least one other identification-data storage means.
20
5. The system according to any one of the previous claims, wherein the identification-data storage means is a read-write tag capable of remotely recording information.
- 25 6. The system according to claim 5, wherein the interrogating means is capable of transmitting data to the identification-data storage means.
7. The system according to either one of claim 5 or claim 6, wherein the output means is capable of transmitting data to the identification-data storage means.

8. The system according to any one of the previous claims, wherein the output means, following interrogation of a particular object's identification-data storage means, feeds back information to that object.

5 9. The system according to any one of the previous claims, wherein the object is a human.

10. The system according to any one of the previous claims, wherein the output means provides a human-discernible output dependent upon the data read by the or each
10 interrogating means.

11. A system according to any one of claims 5 to 10, wherein the read-write tag comprises circuitry and transceiver components, the circuitry including an electronic chip which decodes received signals into data, the data being stored in memory on the chip,
15 and which transmits signals corresponding to data stored in memory.

12. A system according to any one of the previous claims, wherein the interrogating means are provided at locations within the zone to monitor identification-data storage means associated with said one or more objects within a minimum distance
20 from the interrogating means.

13. A system according to claim 12, wherein the minimum distance is less than 7 m, for example less than 4 m.

25 14. A system according to claim 13, wherein the minimum distance is less than 1.5 m, for example less than 70 cm.

15. A system according to any one of the previous claims, wherein the output means provides information in the form of an audio or visual message.

16. A system according to claim 15, wherein the audio message includes any one of the group consisting of a greeting, request, instruction, warning and direction.

17. A system according to claim 15, wherein the visual message is displayed on a display panel comprising any of the group consisting of cathode ray tubes, light emitting diode (LED) elements, liquid crystal display (LCD) elements, gas discharge display elements, analogue displays, plasma displays, and light emitting plastic (LEP) elements.

18. A system according to any one of the previous claims, wherein the interrogating means, processing means and, optionally, output means, are housed within a single unit.

19. A system according to claim 18, further comprising a central processing means in communication with the processing means of the single unit.

20. A system according to claim 19, wherein there is a remote communication link between the central processing means and processing means of the single unit.

21. A system according any one of claims 18 to 20, wherein the single units are designed to be hand held.

22. A system according to any one of claims 18 to 21, wherein the single units transmit user-defined information to the identification-data storage means.

23. A system according to claim 22, wherein a single unit user is capable of manually selecting information to be transmitted to the identification-data storage means.

24. A system according to either one of claim 22 or claim 23, wherein the single unit is programmable to transmit user-defined information to the identification-data storage means.

5 25. A system according to any one of the previous claims, wherein data stored in the identification-data storage means includes details related to an object, the details being any one of the group consisting of unique reference number (URN), title, name, postal address, e-mail address, telephone number, fax number, occupation, employer, employment organisation, position within employment organisation, employment
10 organisation field of activity, visitor classification code, personal interests, history of association with a company, age, medical history, medical condition and emergency contacts, supervisor details, parental details and guardian details.

26. A system according to any one of the previous claims, wherein data stored
15 in the identification-data storage means additionally includes details in relation to the zone.

27. A system according to any one of the previous claims, wherein data stored in the identification-data storage means additionally includes information pertaining to
20 accessions within subzones associated with given interrogating means.

28. A system according to any one of the previous claims, the zone being any one of the group consisting of a building, convention centre, shopping mall, shop, play zone, recreation centre, public amusement centre, marquee and urban area.
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29. A system according to any one of the previous claims, wherein the identification-data storage means are delivered up by objects after a defined time period and data peculiar to each object is examined.



INVESTOR IN PEOPLE

Application No: GB 0105125.9
Claims searched: 1-29

Examiner: Melanie Gee
Date of search: 25 July 2001

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.S): G4H (HJ, HNHE, HTG); H4L (LASS)

Int CI (Ed.7):

Other: Online: WPI, EPODOC, PAJ

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2358110 A (FUJITSU), see whole document.	1, 9, 10, 12, 13, 14, 15, 17, 25, 28 at least
X	GB 2345822 A (DB RESEARCH), see whole document.	1, 8, 9, 10, 12, 13, 14, 15, 16, 25, 28 at least
X	GB 2332547 A (OXLEY DEVELOPMENTS), see especially page 6 lines 10-23.	1, 4, 9, 10, 12, 13, 14, 25, 38 at least
X	GB 2310302 A (KALAMAZOO COMPUTER GROUP), see whole document.	1, 9, 10, 12, 13, 14, 25, 28 at least
X, P	EP 1001356 A1 (STROOSNIER et al.), see whole document.	1, 5, 9, 11, 12, 13, 14, 25, 28, 29 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.



INVESTOR IN PEOPLE

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Claims searched: 1-29

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Category	Identity of document and relevant passage	Relevant to claims
X	WO 87/03116 A1 (SANTIAGO DATA SYSTEMS), see especially page 15 line 9 - page 20 line 18, and page 24 lines 18-19.	1, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 25, 28 at least
X	US 5245162 A (TAKAHASHI), see e.g. abstract.	1, 9, 12, 13, 14, 25 at least
X	US 4654793 A (ELROD), see especially col. 5 line 27 - col. 7 line 37.	1, 9, 12, 13, 14, 25, 28 at least

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&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.